



# **STOCKPILE REPORT**

## **to the Congress**

**JULY-DECEMBER 1966**

**EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF EMERGENCY PLANNING  
WASHINGTON, D. C. 20504**



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OFFICE OF THE DIRECTOR

April 17, 1967

Honorable Hubert H. Humphrey  
President of the Senate

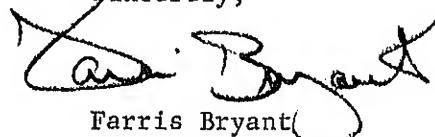
Honorable John W. McCormack  
Speaker of the House of Representatives

Sirs:

Pursuant to Section 4 of the Strategic and Critical Materials Stock Piling Act, Public Law 520, 79th Congress, there is presented herewith the semiannual report to the Congress on the strategic and critical materials stockpiling program for the period July 1 to December 31, 1966.

A statistical supplement to this report was transmitted to you on March 7, 1967.

Sincerely,

  
Farris Bryant  
Director

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## SUMMARY

This report covers the principal activities in stockpile planning and management during July 1 through December 31, 1966, under the provisions of Public Law 520 (79th Congress), the Strategic and Critical Materials Stock Piling Act.

Nuclear war stockpile objectives were established for all strategic and critical materials included in the National Stockpile. The nuclear war objectives for the basic materials are less than or identical to existing conventional war objectives, with the exception of opium, where the nuclear objective is higher. A comparison of the conventional and nuclear objectives of all basic stockpile materials is shown on page 2.

Strategic materials on hand in all Government inventories as of December 31, 1966, amounted to \$7.2 billion at acquisition cost and \$6.8 billion at estimated market value. Of the total materials in Government inventories, \$4.0 billion at cost and \$3.5 billion at estimated market value are considered to be in excess of conventional war stockpile objectives. Comparison of the estimated market value of the objectives established and the extent to which materials on hand in all Government inventories meet these objectives are shown in the chart on page 5.

Cumulative sales commitments by the General Services Administration for the disposal of surplus materials as of December 31, 1966, totaled approximately \$2.5 billion at sales value. Disposal sales commitments during the July-December 1966 period accounted for \$204.7 million. This sales level is down from the record high of approximately \$582.2 million, established in the preceding six months period. (See Figures 1 and 2, page 12.)

## INTRODUCTION

### SUPPLY-REQUIREMENTS STUDIES— CONVENTIONAL WAR

During July-December 1966, new conventional war stockpile objectives were revised for several materials and a review of all stockpile objectives is planned for 1967.

Stockpile objectives are not static. Since they reflect the shortages—the difference between supply and requirements—that would exist in an emergency period, changes in either the estimated supply of or requirements for a material during the emergency period will require a review and possible revision of the stockpile objective.

Changes may take place gradually as the economy of the United States and the Free World grows or, for a particular material, may be abrupt because of new uses for the material (or reductions because of substitution of cheaper or better materials) or sudden changes in the available supply. In the latter instance, OEP reviews stockpile objectives for individual materials as the need arises. For the former case, periodic reviews are made of the stockpile objectives for all materials.

Reviews of stockpile objectives based upon new supply-requirements studies of conventional war were completed and indicated revisions in objectives were established for the following materials:

Material	Unit	Stockpile Objective	
		Prior	New
Bismuth .....	Lb	3,600,000	2,400,000
Feathers and Down .....	Lb	3,000,000	3,000,000
Magnesium ...	ST	145,000	90,000
Molybdenum ..	Lb	55,000,000	40,000,000
Nickel .....	ST	50,000	20,000
Platinum .....	TrOz	450,000	335,000
Rutile .....	SDT	51,000	200,000
Titanium .....	ST	20,500	37,500
Vanadium ....	ST	1,400	1,500

In those cases where the new objective is less than the prior objective, programs are under development to dispose of any surplus materials generated by the change. Congres-

sional authority for disposing of these materials from the National Stockpile is required.

Publication by the Office of Business Economics, Department of Commerce, of the results of its "1958 Interindustry Relations Study" provided a new tool for estimating the total output levels that would be needed from various industries during an emergency period. This technique, when coupled with new data on the quantities of various materials required per unit of output from the various industries, provides improved procedures for computing the emergency requirements for stockpiled materials. On the basis of these new techniques, a complete review of all stockpile objectives is expected during 1967.

### SUPPLY-REQUIREMENTS STUDIES— NUCLEAR WAR

At the end of 1966, nuclear war stockpile objectives had been determined for all materials classified as strategic and critical and included in the National Stockpile. This initial establishment of nuclear objectives was made possible after three years of study conducted by OEP with the assistance of various Federal departments and agencies. The study involved determinations of the essential programs that would have to be carried out following a nuclear attack on the United States and the ability of the potential postattack economy to provide the resources for these programs. Input-output techniques, utilizing the results of the Office of Business Economics, Department of Commerce "Interindustry Relations Study", were applied to insure that postattack programs were feasible and in balance.

The appropriate departments and agencies, primarily the Business and Defense Services Administration, using the results of the OEP study and the techniques developed, conducted special analyses of individual industries and prepared estimates of the potential postattack supply-requirements status for each of the 77 basic materials having conventional war objectives. The results of these analyses, coupled with data relating to the usage of the various materials, were used to determine the amounts of stockpiled material that would be needed for

each of the basic materials included in the National Stockpile. The amounts so determined constituted the nuclear war stockpile objectives for each of the materials. For all materials, except opium, these nuclear war objectives were less than or identical to existing conventional war objectives.

Present policy, as set forth in Defense Mobilization Order 8600.1, March 30, 1964, provides that: "... Strategic stockpile objectives shall

be adequate for limited or general, conventional or nuclear war, whichever shows the largest supply-requirements deficit to be met by stockpiling . . ." Accordingly, the higher objective is the controlling level for all actions relating to the material, such as acquisitions and disposals.

A comparison of the conventional and nuclear objectives of all basic stockpile materials follows:

#### COMPARATIVE SUMMARY

Material	Unit	Conventional Objective	Nuclear Objective
Aluminum . . . . .	ST	450,000	0
Aluminum Oxide, Fused . . . . .	ST	300,000	37,000
Antimony . . . . .	ST	25,500	11,000
Asbestos, Amosite . . . . .	ST	40,000	27,000
Asbestos, Chrysotile . . . . .	ST	13,700	0
Bauxite, Metal Grade, Jamaica . . . . .	LDT	5,000,000	1,450,000
Bauxite, Metal Grade, Surinam . . . . .	LDT	5,800,000	0
Bauxite, Refractory . . . . .	LCT	173,000	0
Beryl . . . . .	ST	28,000	7,000
Bismuth . . . . .	LB	2,400,000 <sup>1</sup>	732,000
Cadmium . . . . .	LB	5,100,000	0
Castor Oil . . . . .	LB	22,000,000	558,000
Celestite . . . . .	ST	10,300	3,000
Chromite, Chemical . . . . .	SDT	600,000	260,000
Chromite, Metallurgical . . . . .	SDT	2,970,000	1,122,000
Chromite, Refractory . . . . .	SDT	1,425,000	400,000
Cobalt . . . . .	LB	42,000,000	10,220,000
Columbium . . . . .	LB	1,176,000	674,000
Copper . . . . .	ST	775,000	0
Cordage Fibers, Abaca . . . . .	LB	50,000,000	50,000,000
Cordage Fibers, Sisal . . . . .	LB	200,000,000	200,000,000
Torundum . . . . .	ST	2,500	1,500
Ammon Dyes, Small . . . . .	PC	25,000	4,300
Ammon, Industrial; Bort . . . . .	KT	24,700,000	5,800,000
Ammon, Industrial; Stones . . . . .	KT	16,500,000	5,275,000
Fathers and Down . . . . .	LB	3,000,000	3,000,000
Fluorspar, Acid . . . . .	SDT	540,000	0
Fluorspar, Metallurgical . . . . .	SDT	850,000	0
Graphite, Ceylon . . . . .	ST	5,500	2,000
Graphite, Malagasy . . . . .	ST	18,000	5,300
Graphite, Other . . . . .	ST	2,800	0
Iodine . . . . .	LB	8,000,000	1,600,000
Jewel Bearings . . . . .	PC	57,500,000	57,500,000
Kyanite-Mullite . . . . .	SDT	4,800	0
Lead . . . . .	ST	0	0

Material	Unit	Conventional Objective	Nuclear Objective
Magnesium . . . . .	ST	90,000 <sup>1</sup>	0
Manganese, Battery, Natural . . . . .	SDT	80,000	69,500
Manganese, Battery, Syn. Diox. . . . .	SDT	6,700	0
Manganese Ore, Chemical, Type A . . . . .	SDT	68,500	28,000
Manganese Ore, Chemical, Type B . . . . .	SDT	64,000	30,000
Manganese Ore, Metallurgical . . . . .	SDT	7,900,000	2,700,000
Mercury . . . . .	FL	200,000	8,600
Mica, Muscovite Block, Stained and Better . . . . .	LB	6,000,000	1,240,000
Mica, Muscovite Film . . . . .	LB	2,000,000	490,000
Mica, Muscovite Splittings . . . . .	LB	22,200,000	10,580,000
Mica, Phlogopite Block . . . . .	LB	17,000	17,000
Mica, Phlogopite Splittings . . . . .	LB	1,300,000	574,000
Molybdenum . . . . .	LB	40,000,000 <sup>1</sup>	0
Nickel . . . . .	ST	20,000 <sup>2</sup>	17,500
Opium . . . . .	LB	0	143,000
Platinum Group Metals, Iridium . . . . .	TrOz	17,000	3,100
Platinum Group Metals, Palladium . . . . .	TrOz	1,300,000	630,000
Platinum Group Metals, Platinum . . . . .	TrOz	335,000 <sup>1</sup>	235,500
Pyrethrum . . . . .	LB	25,000	22,000
Quartz Crystals . . . . .	LB	650,000	0
Quinidine . . . . .	OZ	2,000,000	1,400,000
Quinine . . . . .	OZ	4,130,000	4,130,000
Rare Earths . . . . .	SDT	3,000	800
Rubber . . . . .	LT	130,000	72,000
Rutile . . . . .	SDT	200,000	29,500
Sapphire and Ruby . . . . .	KT	18,000,000	18,000,000
Selenium . . . . .	LB	475,000	0
Shellac . . . . .	LB	8,800,000	3,900,000
Silicon Carbide, Crude . . . . .	ST	30,000	12,000
Silver . . . . .	Fine TrOz	165,000,000	9,975,000
Sperm Oil . . . . .	LB	23,400,000	23,400,000
Talc, Steatite Block & Lump . . . . .	ST	200	50
Tantalum . . . . .	LB	3,400,000	1,200,000
Thorium . . . . .	LB	500,000	0
Tin . . . . .	LT	200,000	26,200
Titanium Sponge . . . . .	ST	87,500	0
Tungsten . . . . .	LB	44,000,000	2,500,000
Vanadium . . . . .	ST	1,500 <sup>1</sup>	60
Vegetable Tannin Extract, Chestnut . . . . .	LT	15,000	9,500
Vegetable Tannin Extract, Quebracho . . . . .	LT	86,000	50,600
Vegetable Tannin Extract, Wattle . . . . .	LT	15,000	9,500
Zinc . . . . .	ST	0	0

<sup>1</sup> Established January 5, 1967.

<sup>2</sup> Established January 13, 1967.

## SUMMARY OF GOVERNMENT INVENTORIES OF STRATEGIC AND CRITICAL MATERIALS

As of December 31, 1966, the strategic materials held in all Government inventories amounted to \$7.2 billion at acquisition cost and \$6.8 billion at estimated market value. Of this total, \$4.7 billion at cost was in the National Stockpile, \$1.4 billion in the Supplemental Stockpile, \$1.1 billion in the Defense Production Act inventory, and \$5.4 million in the Commodity Credit Corporation inventory. Of the total materials in Government inventories, approximately \$4.0 billion at cost and \$3.5 billion at estimated market value are considered to be in excess of stockpile objectives. Over 83 percent of the market value of the total excess

is made up of 12 materials consisting of aluminum, bauxite (Jamaica and Surinam), metallurgical grade chromite, cobalt, industrial diamond stones, lead, metallurgical grade manganese, nickel, rubber, tin, tungsten, and zinc.

The following table is a summary of the total value of all materials carried in Government inventories, including those with quantities in excess of stockpile objectives for conventional war. It indicates the acquisition cost and estimated market value of materials with inventories meeting stockpile objectives, and materials with inventories excess to stockpile objectives.

## SUMMARY OF GOVERNMENT INVENTORIES OF STRATEGIC AND CRITICAL MATERIALS

*December 31, 1966*

	Short Tons (In Millions)	Acquisition Cost	Market Value <sup>1</sup>
<b>I. Total Inventories</b>			
National Stockpile .....	24.3	\$4,674,483,100	\$4,791,986,900
Supplemental Stockpile .....	18.0	1,425,280,900	1,323,153,200
Defense Production Act .....	6.0	1,095,514,100	672,681,800
Commodity Credit Corporation .....	.0	5,436,800	5,608,200
<b>Total on Hand .....</b>	<b>48.3</b>	<b>7,200,714,900</b>	<b>6,793,430,100</b>
On Order .....	.1	40,254,100	41,730,000
<b>II. Inventories Within Objective</b>			
Total on Hand .....	27.3	3,203,494,900	3,341,399,100
<b>Inventories Excess to Objective</b>			
Total on Hand .....	21.0	3,997,220,000	3,452,031,000

Market values are computed from prices at which similar materials are being traded currently; or, in the absence of current trading, an estimate of the price which would prevail in commercial markets. The market values are generally unadjusted for normal premiums and discounts relating to contained qualities, so that market values are understated for materials such as metal grade bauxite to the extent that the inventories are of premium quality. The market values do not necessarily reflect the amount that would be realized at time of sale.

Source: General Services Administration

## STATUS OF STOCKPILE OBJECTIVES

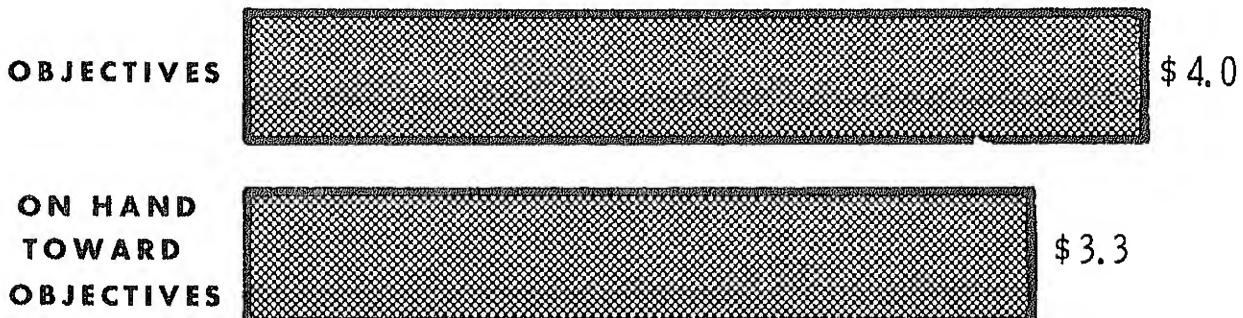
The bar chart below shows the estimated market value of the objectives established and the extent to which materials on hand in all Government inventories (National Stockpile,

Supplemental Stockpile, DPA, and CCC) meet these objectives. The figures do not include the quantities on hand in all Government inventories which are in excess of stockpile objectives (\$3.5 billion).

# STATUS OF STOCKPILE OBJECTIVES

AS OF DECEMBER 31, 1966

(In Billions of Dollars)  
MARKET VALUE



Inventories, including objectives, and balance of disposal authorizations, for each material on the Strategic and Critical Materials List are shown in the following summary. As of December 31, 1966, total quantities of stockpile grade materials on hand and on order for all Government-owned inventories are in excess or equal to the stockpile objectives for 64 of the 77 basic materials on the List of Strategic and Critical Materials for Stockpiling. In addition to the specification grade materials, Government inventories contain nonspecification grades not credited to stockpile objectives. Most of the nonspecification grade materials in the National Stockpile were acquired by the

transfer of Government-owned surpluses to the stockpile after World War II while others were accepted as contract termination inventories. Several were of specification grade when acquired but no longer qualify due to changes in industry practices and other technological advances. Disposal action for most of the excesses shown in the following summary has been authorized by the Congress or by OEP (in the case of DPA materials), while others are currently under disposal consideration. Inventory changes during the report period were due primarily to disposals, or to reclassification and other adjustments of the inventories.

**SUMMARY OF GOVERNMENT INVENTORIES, OBJECTIVES,  
EXCESSES AND BALANCE OF DISPOSAL AUTHORIZATIONS**

Basic Stockpile Materials  
*As of December 31, 1966*

(Market Value—\$ Millions)

Commodity	Unit	Objective	Total Inventory <sup>1,2</sup>	Market Value	Excess <sup>2</sup>	Market Value	Balance of Disposal Authorization
1. Aluminum . . . . .	ST	450,000	1,566,290	\$767.5	1,116,290	\$547.0	1,091,205 <sup>3</sup>
2. Aluminum oxide, fused . . . . .	ST	300,000	429,265	69.2	129,265	18.6	129,265
3. Antimony . . . . .	ST	25,500	49,433	42.9	23,933 <sup>4</sup>	20.4	2,683
4. Asbestos, amosite .	ST	40,000	65,892	12.7	25,892	5.0	14,651
5. Asbestos, chrysotile .	ST	13,700	14,533	9.2	5,397 <sup>5</sup>	1.9	2,050
6. Bauxite, metal, Jamaica . . . . .	LDT	5,000,000	8,858,881	103.1	3,858,881 <sup>6</sup>	44.9	714,000
7. Bauxite, metal, Surinam . . . . .	LDT	5,300,000	7,889,967	121.1	2,589,967 <sup>6</sup>	39.8	0
8. Bauxite, refractory.	LCT	173,000	243,818	10.2	70,318	3.0	66,401
9. Beryl . . . . .	ST	28,000	44,735	57.6	16,735 <sup>4</sup>	17.1	0
10. Bismuth . . . . .	LB	3,600,000*	3,812,815	15.2	212,315	.8	0
11. Cadmium . . . . .	LB	5,100,000	14,779,863	35.5	9,679,863	23.2	4,337,296 <sup>7</sup>
12. Castor oil . . . . .	LB	22,000,000	154,200,129	23.6	132,200,129	19.2	73,829,868 <sup>8</sup>
13. Celestite . . . . .	ST	10,300	48,460	1.1	38,160	.8	28,816
14. Chromite, chemical.	SDT	600,000	1,259,040	30.8	659,040	15.3	116,458 <sup>9</sup>
15. Chromite, metallurgical . . . . .	SDT	2,970,000	6,220,161	823.7	3,250,161	194.9	1,762,846
16. Chromite, refractory . . . . .	SDT	1,425,000	1,226,932	18.6	228 <sup>5</sup>	.003	0
17. Cobalt . . . . .	LB	42,000,000	101,437,512	154.7	59,487,512	90.6	23,549,028 <sup>8</sup>
18. Columbium . . . . .	LB	1,176,000	14,148,675	24.4	12,972,675	26.7	5,937,587
19. Copper . . . . .	ST	775,000	459,509	836.1	0	0	150,000**
20. Cordage fiber; abaca	LB	50,000,000	141,069,010	27.5	91,069,010	17.8	85,831,422
21. Cordage fiber, sisal.	LB	200,000,000	289,345,496	25.3	89,845,496	7.8	66,337,562
22. Corundum . . . . .	ST	2,500	1,964	.2	1,952 <sup>5</sup>	.2	0
23. Diamond dies, small . . . . .	PC	25,000	13,696	.5	403 <sup>10</sup>	.01	0
24. Diamond, industrial: bort . . . . .	KT	24,700,000	38,196,223	89.0	13,496,223 <sup>11</sup>	31.2	0
25. Diamond, industrial: stones . . . . .	KT	16,500,000	25,070,033	352.5	8,570,033	116.7	1,800,000 <sup>12</sup>
26. Feathers and down.	LB	3,000,000	5,548,944	15.4	2,548,944	4.2	0
27. Fluorspar, acid grade . . . . .	SDT	540,000	1,152,030	38.9	262,030 <sup>13</sup>	8.6	21,709 <sup>12</sup>

Commodity	Unit	Objective	Total Inventory <sup>1,2</sup>	Market Value	Excess <sup>2</sup>	Market Value	Balance of Disposal Authorization
28. Fluorspar, metallurgical . . . . SDT		850,000	412,243	\$15.7	0	\$ 0	0
29. Graphite, natural, Ceylon . . . . . ST		5,500	5,886	1.3	386 <sup>10</sup>	.09	0
30. Graphite, natural, Malagasy . . . . ST		18,000	33,986	3.7	15,986	1.8	15,559
31. Graphite, other . . . . ST		2,800	5,199	.7	2,399	.3	2,256
32. Iodine . . . . . LB		8,000,000	7,053,351	8.3	0	0	0
33. Jewel bearings . . . . PC		57,500,000	54,086,640	22.7	14,726,698 <sup>5,14</sup>	6.2	0
34. Kyanite, Mullite . . . SDT		4,800	6,813	.7	2,013	.2	0
35. Lead . . . . . ST		0	1,220,788	341.8	1,220,788 <sup>4</sup>	341.8	89,728
36. Magnesium . . . . ST		145,000*	152,033	97.3	7,033	4.5	2,329
37. Manganese, battery, natural . . . . . SDT		80,000	309,121	23.2	229,121 <sup>4</sup>	17.2	0
38. Manganese, battery, syn. diox. . . . . SDT		6,700	24,822	12.2	18,122	8.9	18,122
39. Manganese ore, chemical A . . . . SDT		68,500	146,914	13.0	78,414 <sup>4</sup>	6.9	0
40. Manganese ore, chemical B . . . . SDT		64,000	100,838	5.0	36,888 <sup>4</sup>	1.8	0
41. Manganese, metallurgical . . . . SDT		7,900,000	13,073,161	444.2	5,173,161	183.6	3,438,437
42. Mercury . . . . . FL		200,000	200,365	96.1	365 <sup>10</sup>	.1	0
43. Mica, muscovite block St/Better . . LB		6,000,000	15,456,034	65.4	8,891,284	25.9	8,865,418
44. Mica, muscovite film, 1 & 2 quality . . . LB		2,000,000	1,441,670	16.3	6,420 <sup>5</sup>	.006	6,420
45. Mica, muscovite splittings . . . . LB		22,200,000	44,866,428	53.8	22,666,428	27.2	22,466,428
46. Mica, phlogopite block . . . . . LB		17,000	223,289	.06	206,520 <sup>5</sup>	.04	206,520
47. Mica, phlogopite splittings . . . . LB		1,300,000	5,065,964	8.1	8,765,964	6.0	3,747,997
48. Molybdenum . . . . LB		55,000,000*	60,309,840	97.5	5,309,840	11.7	1,493,524
49. Nickel . . . . . ST		50,000*	97,101	164.9	47,101	79.6	9,808
50. Opium . . . . . AVLB		148,000	180,707	18.6	37,707	4.7	2,518
51. Platinum group, iridium . . . . . TrOz		17,000	18,937	2.3	0	0	
52. Platinum group, palladium . . . . . TrOz		1,300,000	837,491	30.1	0		
53. Platinum group, platinum . . . . . TrOz		450,000*	452,191				
54. Pyrethrum . . . . . LB		25,000	67,044				

Commodity	Unit	Objective	Total Inventory <sup>1,2</sup>	Market Value	Excess <sup>2</sup>	Market Value	Balance of Disposal Authorization
55. Quartz crystals . . . .	LB	650,000	5,572,380	\$59.1	4,922,380	\$51.5	4,907,377
56. Quinidine . . . . .	OZ	2,000,000	1,600,438	6.2	0	0	0
57. Quinine . . . . .	OZ	4,130,000	3,748,165	7.6	0	0	0
58. Rare earths . . . . .	SDT	3,000	15,788	7.1	12,788 <sup>16</sup>	5.8	0
59. Rubber . . . . .	LT	130,000	591,873	289.8	461,873	226.1	435,257
60. Rutile . . . . .	SDT	200,000	47,617	5.7	0	0	0
61. Sapphire and Ruby .	KT	18,000,000	16,308,797	.2	0	0	0
62. Selenium . . . . .	LB	475,000	403,702	1.8	0	0	0
63. Shellac . . . . .	LB	8,300,000	15,284,042	2.5	6,984,042	.8	6,690,123
64. Silicon carbide, crude . . . . .	ST	30,000	196,446	43.0	166,446 <sup>6</sup>	36.4	0
65. Silver . . . . .	Fine TrOz	165,000,000					
66. Sperm oil . . . . .	LB	23,400,000	23,481,738	3.6	81,738 <sup>7</sup>	.01	0
67. Talc, steatite block & lump . . . . .	ST	200	1,254	.4	1,054	.3	1,048
68. Tantalum . . . . .	LB	3,400,000	4,123,195	50.8	0 <sup>17</sup>	0	0
69. Thorium oxide . . .	LB	500,000	0 <sup>18</sup>	0	0	0	0
70. Tin . . . . .	LT	200,000	268,579	928.0	68,579	237.0	66,761
71. Titanium sponge ..	ST	37,500	30,524	73.6	10,024 <sup>6</sup>	23.3	9,838
72. Tungsten . . . . .	ST	44,000,000	196,059,884	539.2	152,059,884	419.8	69,306,248 <sup>8</sup>
73. Vanadium . . . . .	ST	1,400*	6,462	30.9	5,062	22.0	4,209
74. Vegetable tannin, chestnut . . . . .	LT	15,000	33,527	6.7	18,527	3.7	18,519
75. Vegetable tannin, quebracho . . . . .	LT	86,000	196,547	39.6	110,547	22.3	110,500
76. Vegetable tannin, wattle . . . . .	LT	15,000	38,940	7.7	23,940	4.8	23,912
77. Zinc . . . . .	ST	0	1,212,368	351.6	1,212,368 <sup>4</sup>	351.6	184,016

<sup>1</sup> Total inventory consists of stockpile and nonstockpile grades.

<sup>2</sup> Includes quantities that have been committed but not shipped.

<sup>3</sup> Committed for sale but undelivered under long-term contracts.

<sup>4</sup> Uncommitted balance of excess held due to market impact.

<sup>5</sup> Excess represents nonstockpile quality material not held for objective.

<sup>6</sup> Congressional approval deferred due to market impact.

<sup>7</sup> Balance of excess pending supply-requirements study.

<sup>8</sup> Balance of excess pending present sales program.

Balance of excess retained (1) for refractory chromite deficit, and (2) due to high quality.

Retained due to limited quantity.

Deferred due to foreign situation.

Balance of excess deferred by the Congress due to market impact.

<sup>9</sup> Excludes 350,000 SDT credited to metallurgical fluorspar.

<sup>10</sup> Factory inspecting feasibility of reworking bearings to meet stockpile specifications.

<sup>11</sup> 7,640 SDT pending Congressional approval; 5,148 SDT pending supply-requirements study.

<sup>12</sup> Objective filled from Treasury-held stocks.

<sup>13</sup> Takes into consideration materials required in upgrading.

<sup>14</sup> Excludes 1,086,960 LBS thorium nitrate credited as 500,000 LBS thorium oxide.

\* Revised objective established in January 1967. See pages 2 and 3.

\*\* Presidential Release.

## OTHER MATERIALS IN GOVERNMENT INVENTORIES

In addition to inventories, including objectives, and balance of disposal authorizations

for each material on the Strategic and Critical Materials List, inventories covering materials that have been removed from the stockpile list, and others for which there are no stockpile objectives, are indicated in the table below.

### SUMMARY OF GOVERNMENT INVENTORIES AND BALANCE OF DISPOSAL AUTHORIZATIONS COVERING MATERIALS FOR WHICH THERE ARE NO STOCKPILE OBJECTIVES

*As of December 31, 1966*  
(Market Value—\$ Millions)

Commodity	Unit	Total Inventory <sup>1</sup>	Market Value	Balance of Disposal Authorizations
Antimonial lead .....	ST	10,818	\$ 3.2	9,449
Asbestos, crocidolite .....	ST	48,547	11.1	48,412
Brass .....	ST	54	.04	0
Bronze .....	ST	76	.07	0
Colemanite .....	LDT	67,636	2.6	67,506
Columbium oxide powder .....	LB	23,372	.06	<sup>2</sup>
Cryolite .....	ST	6,103	.8	0
Diamond tools .....	PC	64,178 <sup>3</sup>	.8	0
Mica, muscovite block, St. B/Lower .....	LB	4,320,402	11.9	4,320,402
Mica, muscovite film, 3rd quality .....	LB	496,750	.5	496,750
Platinum group metals, rhodium .....	TrOz	178	.03	173
Platinum group metals, ruthenium .....	TrOz	13,699	.8	13,699
Silk noils .....	LB	56,188	.04	0
Talc, steatite ground .....	ST	3,900	.02	3,900
Thorium nitrate (oxide content) .....	LB	3,138,861	13.2	3,138,861
Thorium residue .....	LB	839,079	0	839,079
Zirconium ore, baddeleyite .....	SDT	16,514	.7	16,514
Zirconium ore, zircon .....	SDT	1,721	.002	1,721

<sup>1</sup> Includes quantities that have been committed but not shipped.

<sup>2</sup> Under disposal consideration.

<sup>3</sup> Pending Congressional action at adjournment, will require resubmission.

## NATIONAL STOCKPILE ACTIVITIES

### PROCUREMENT AND UPGRADING

The OEP Strategic Stockpile Procurement Directive for FY 1967 issued on September 7, 1966, and amended on November 17, 1966, directs the procurement of 11 strategic materials for the National Stockpile.

Only two of these—jewel bearings and copper—are to be acquired by expenditure of funds. Arrangements were made by the General Services Administration prior to December 31, 1966, to obtain the jewel bearings from the Government-owned facility at Rolla, North Da-

kota, under the Government's contract with Bulova Watch Company, Inc. The copper is to be obtained under the Defense Production Act Expansion Program, subject to certification of specific projects by OEP. An additional procurement program is under development. Following a new supply-requirements study, a revised stockpile objective of 200,000 short dry tons of rutile (previously 51,000 tons) was established on November 17, 1966. As of January 18, 1967, a Domestic Rutile Production Expansion Goal of 70,000 short tons per year was established. Current U.S. production is about 5,000 tons annually. To effect this expansion goal, OEP authorized the Department of the Interior to encourage the exploration, development and mining of stockpile grade rutile ores and concentrates and to recommend programs for DPA financing. OEP also authorized GSA to develop a Defense Production Act domestic purchase program for stockpile grade rutile ore and concentrates.

Four other materials—oxygen free high-conductivity copper, morphine sulphate, crystalline tungsten carbide, and hydrogen-reduced tungsten metal powder—are to be acquired by upgrading basic materials in the stockpile. On December 31, 1966, contracts had been entered into by GSA for the production of the OFHC copper and the morphine sulphate, under which the contractors will receive as full compensation, in lieu of cash, tin and raw gum opium, respectively, which are excess to the Government's requirements. Invitations for bids for the tungsten upgrading will be issued by GSA early in the calendar year 1967.

The 5 remaining materials—low iron chrysotile asbestos, corundum, palladium (in addition to a small quantity being upgraded), rutile, and selenium—are to be obtained under the Directive in exchange for surplus agricultural commodities under the barter program of the Commodity Credit Corporation, Department of Agriculture. No barter contracts for any of these materials had been executed by the CCC as of December 31, 1966.

#### JEWEL BEARING FACILITY

In November 1966, after Congressional approval of Public Law 89-784, the name of the Turtle Mountain Jewel Bearing Plant, Rolla,

North Dakota, was changed to the William Langer Jewel Bearing Plant in honor of the late Senator William Langer of North Dakota, who was largely responsible for the establishment of this industry in North Dakota.

During July-December 1966, the Bulova Watch Company, Inc., continued to produce jewel bearings for the stockpile and defense contractors. Both the stockpile contract and the lease for the property at Rolla, North Dakota, were extended through June 30, 1967.

Except for a few production and toolroom equipment units, deliveries of essentially all the modern jewel bearing production equipment has been completed. The assimilation of this equipment into the regular production stream has resulted in a marked improvement in production methods and techniques, and a steady increase in efficiency of operations with no significant increase in personnel. By December, the average production level had increased to approximately 50,000 jewel bearings per week from a weekly average of 30,000 about one year ago. The maximum installed production capability of the plant, by the end of the year, approached 7,500,000 jewel bearings per year on a one shift basis and 15,000,000 on a three shift basis.

At the end of the year, a restructuring and reduction of the price of jewel bearings were being considered. Draft legislation was being prepared to provide for a change in the method of operation of the plant. This legislation, if approved, would enable the use of operational flexibilities which would further increase efficiencies with a consequent reduction in cost of operations.

#### DISPOSAL PROGRAM ACTIVITY

Disposal sales and commitments in the July-December period totaled \$204.7 million as compared with the record sales of \$582.2 million during the previous six months when certain materials (copper, molybdenum, nickel, and platinum) were available from excess inventories to help relieve the heavy industrial demands stimulated by the Viet Nam build-up and rapidly expanding economy. Although these materials continued in critical supply during the July-December period, Government

sales were unavailable to aid in filling the gap when stockpile excesses became depleted, as indicated by the comparable sales.

1966 SALES AND COMMITMENTS (\$ Millions)		
	January-June	July-December
Copper .....	\$156.1	\$ .02
Molybdenum .....	19.3	1.7
Nickel .....	126.9	25.9
Platinum .....	29.5	1.0
	<b>\$331.8</b>	<b>\$28.62</b>

Though the dollar value of sales during the reporting period (\$204.7 million) was lower than the comparable period in FY 1966 (\$446.0 million), actual disposal activity intensified in the period because disposal programs were conducted in 43 commodity areas compared with only 27 active disposals in the same period a year ago. The new programs involved numerous mineral and ore commodities which presented problems as complex, if not more so, than those associated with higher priced metals. The planning and implementation of 43 separate disposal programs imposed an administrative burden which is not apparent in the period's lower volume of sales proceeds.

As production capacity for some materials continued to fall short of consumer demands, steps were taken to increase disposal sales—often at the request of producers, processors and consumers—to avoid possible interruption of defense and essential civilian production and to alleviate hardship cases. Materials in short supply included aluminum, bismuth, copper, magnesium, mercury, molybdenum, nickel, platinum, tin, and vanadium. In the case of bismuth, magnesium, molybdenum, nickel, and platinum, additional quantities became available over and above stockpile needs as new conventional war requirements studies involving these materials were completed in late December and early January. At the year end, the following disposal plans were under consideration and for submission for Congressional approval early in 1967:

Material	Unit	National and/or Supp'l Stockpiles	Estimated Value (Millions)
Bismuth .....	LB	1,200,000	\$ 4.8
Magnesium ..	ST	55,000	35.2
Molybdenum ..	LB	15,000,000	24.3
Nickel .....	LB	60,000,000	50.0
Platinum .....	TrOz	115,000	12.6
Rare Earths ..	ST	7,640	3.4
			<b>\$130.3</b>

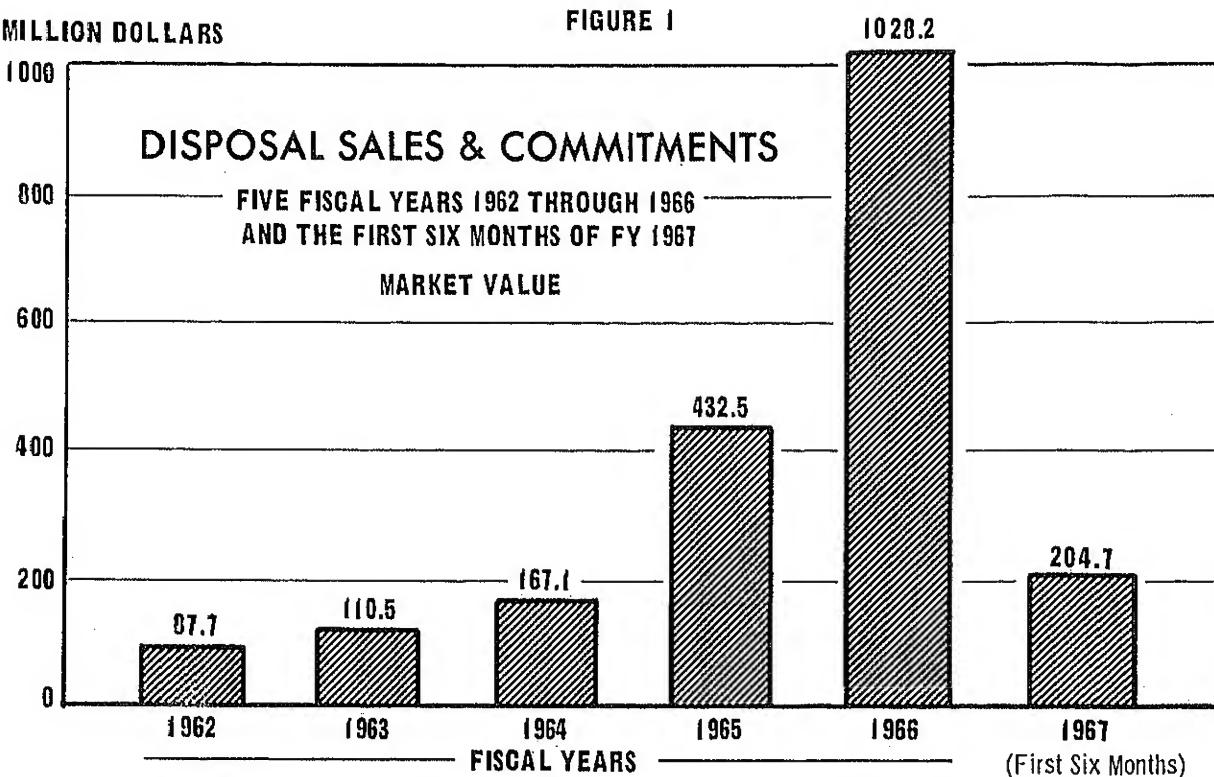
As indicated in the previous report, OEP authorized disposals and GSA completed the disposal programming for practically all excesses in Government inventories prior to June 30, 1966, with the exception of five materials—two (cobalt and diamond bort) were deferred because of market impact, and three (pyrethrum, sperm oil and tantalum) pending supply-requirements studies.

All disposal programs provide for continuous scrutiny in consultation with interested Federal agencies to insure that the mutual interests of industry, foreign Governments and the U.S. Government are fully protected in accordance with the requirements set forth in DMO 8600.1. Accordingly, reviews of sales plans and related matters were conducted during the period with respect to cordage fibers, beryl, cobalt, manganese ores, mercury, nickel, rubber, and tungsten ores and sales rates were adjusted in keeping with market conditions.

During July-December, OEP arranged for the release of 3 programs—24.5 million pounds of nickel, valued at \$19.0 million, remaining as surplus following an earlier cutback in Congressional authorization (November 1965); 25.1 million pounds of cobalt, valued at \$41.4 million, previously deferred from the Defense Production Act inventory due to market impact; and 150,000 tons of copper, valued at \$112.5 million, which the President released from the National Stockpile on December 2, 1966, for purposes of the common defense as provided under Section 5 of the Strategic and Critical Materials Stock Piling Act, as amended. This action was taken at the recommendation of the Director of the Office of Emergency Planning and the recommendations of

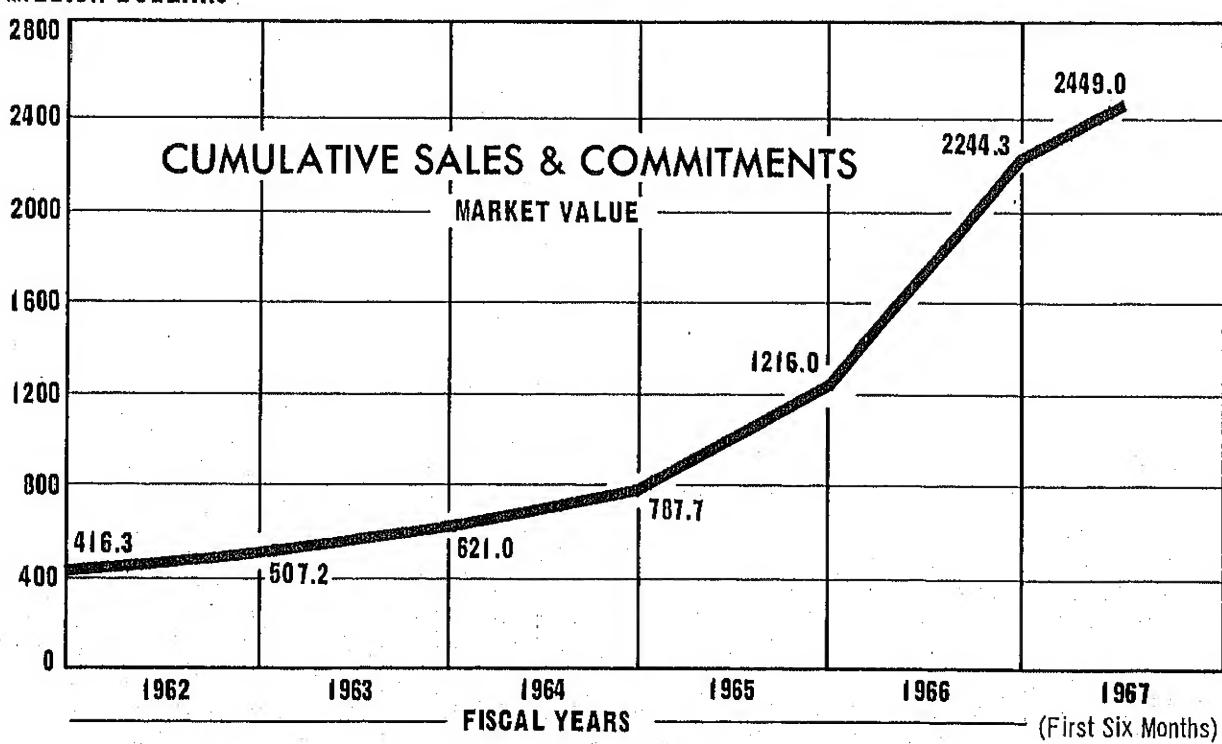
MILLION DOLLARS

FIGURE 1



MILLION DOLLARS

FIGURE 2



the Secretaries of the Treasury, Defense, and Commerce, the Acting Secretary of State, and the Chairman of the Council of Economic Advisers. The distribution of this copper is restricted to domestic consumers for defense-related orders only.

#### LEGISLATION RELATIVE TO STOCKPILE DISPOSALS

Prior to adjournment, the Congress enacted legislation authorizing the sale of five stockpile materials—fused aluminum oxide, industrial diamond stones, synthetic battery grade manganese, metallurgical manganese, and nickel—with an estimated market value of about \$135.8 million. During the two years of the 89th Congress, a total of 43 disposal bills in-

volving the release of 56 surplus materials from the National and Supplemental Stockpiles were submitted for consideration and, of this total, 38 bills (covering 40 disposal bills) were enacted covering 52 strategic commodities, valued at approximately \$1.8 billion in disposal sales. As of December 31, 1966, actual sales or commitments against these authorizations amounted to about \$641.5 million. This performance was made possible through the cooperation and dispatch with which the Congress considered and passed the necessary legislation.

The three bills awaiting Congressional action at the time of adjournment were metallurgical bauxite (Jamaica and Surinam), diamond tools, and silicon carbide.

#### LEGISLATION RELATIVE TO STOCKPILE MATERIALS

July—December 1966

Material	Unit	Quantity	Value (\$ Million)	Date Enacted
Aluminum oxide, fused, crude .....	ST	130,000	\$18.7	PL-724 11-2-66
Diamond stones, industrial .....	KT	1,800,000	23.3	PL-723 11-2-66
Manganese, battery, synthetic .....	SDT	14,572	9.0	PL-726 11-2-66
Manganese, metallurgical .....	SDT	1,900,000	65.8	PL-539 8-19-66
Nickel .....	LB	24,500,000	19.0	PL-740 11-2-66

#### SALES COMMITMENTS

During July-December 1966, disposal sales commitments totaled approximately \$204.7 million at sales value (Figure 1). Of the total sales commitments, \$138.7 million were from the National and Supplemental Stockpiles, \$63.0 million from the Defense Production Act Inventory, and about \$3.0 million from sales of mercury from the Federal Property Act Inventory. These materials had an acquisition cost of \$241.3 million. Commercial sales accounted for \$171.2 million of the total sales commitments and Government-use programs amounted to \$33.5 million, an increase of \$9.6 million over the previous period. The increased Government utilization of excess raw materials was the result of OEP and GSA efforts to establish Government-use programs with agencies such as

the Agency for International Development and the Department of Defense.

Total sales commitments for the previous six months were about \$582.2 million, making the total for calendar year 1966, \$786.9 million. Cumulative disposal sales commitments since the inception of the disposal program in 1958 total approximately \$2.5 billion at sales value (Figure 2). The following materials made up approximately \$177.9 million of the total sales for the July-December period: aluminum, \$41.3 million; columbium, \$6.8 million; lead, \$12.1 million; magnesium, \$7.4 million; nickel, \$25.9 million; rubber, \$39.6 million; tin, \$24.7 million; tungsten, \$10.0 million; vanadium, \$7.3 million; and zinc, \$8.3 million.

A list of the materials sold during the report period is shown in the following table:

**DISPOSALS OF STRATEGIC AND CRITICAL MATERIALS**  
 July—December 1966

Material	Unit	Quantity	Sales Commitments		
			Government Use	Industrial Use	Total Sales Value
<b>NATIONAL STOCKPILE INVENTORY:</b>					
Aluminum . . . . .	ST	39,733	\$ 61,250	\$ 19,654,143	\$ 19,715,393
Antimony . . . . .	ST	20		11,500	11,500
Asbestos, amosite . . . . .	ST	549		106,750	106,750
Asbestos, crocidolite . . . . .	ST	135		23,300	23,300
Bauxite, refractory . . . . .	LCT	18,166		552,972	552,972
Bismuth . . . . .	Lb	212,815	849,200		849,200
Cadmium . . . . .	Lb	636,732		1,528,237	1,528,237
Castor oil . . . . .	Lb	18,157,760		2,629,329	2,629,329
Celestite . . . . .	SDT	9,870		330,607	330,607
Chromite,					
metallurgical . . . . .	SDT	42,240		1,063,414	1,063,414
Colemanite . . . . .	LDT	130		1,300	1,300
Copper . . . . .	ST	22		16,062	16,062
Cordage fibers, abaca . . . . .	Lb	5,507,125	467,872	430,905	898,777
Cordage fibers, sisal . . . . .	Lb	33,661,726		2,620,571	2,620,571
Diamond dies, small . . . . .	Pc	3,393		6,408	6,408
Fluorspar, Acid grade . . . . .	SDT	14,204		446,646	446,646
Graphite, Malagasy,					
crystalline . . . . .	SDT	525		86,538	86,538
Graphite, other . . . . .	SDT	303		42,471	42,471
Lead . . . . .	ST	43,293	122,540	11,934,760	12,057,300
Magnesium . . . . .	ST	12,178	388,440	6,996,540	7,884,980
Manganese,					
metallurgical . . . . .	SDT	82,977		2,102,415	2,102,415
Mica . . . . .	Lb	220,071		159,743	159,743
Molybdenum . . . . .	Lb	1,084,700		1,694,985	1,694,985
Nickel . . . . .	Lb	6,729,046		5,742,546	5,742,546
Opium . . . . .	Lb	36,972		2,475,483	2,475,483
Platinum group metals:					
Platinum . . . . .	TROZ	10,837		1,010,444	1,010,444
Ruthenium . . . . .	TROZ	1,300		48,324	48,324
Quartz crystals . . . . .	Lb	43,633		148,686	148,686
Rubber . . . . .	LT	84,986	26,914,823	12,689,827	39,604,150
Shellac . . . . .	Lb	373,148		60,502	60,502
Tin . . . . .	LT	7,159	4,647,185	20,057,512	24,704,697
Vanadium . . . . .	ST	1,681		7,324,628	7,324,628
Vegetable tannin extracts:					
Quebracho . . . . .	LT	27	450	5,040	5,490
Zinc . . . . .	ST	11,140	11,513	3,245,812	3,257,325
Total National Stockpile . . . . .			\$33,462,773	\$105,243,400	\$138,706,173

Material	Unit	Quantity	Sales Commitments		
			Government Use	Industrial Use	Total Sales Value
<b>DEFENSE PRODUCTION ACT INVENTORY:</b>					
Aluminum .....	ST	44,142	\$21,569,581	\$ 21,569,581	
Asbestos, chrysotile .....	ST	33	6,675	6,675	
Beryl .....	ST	2,542	708,507	708,507	
Cobalt .....	Lb	1,517,623	2,324,678	2,324,678	
Columbium .....	Lb	944,861	6,323,941	6,323,941	
Manganese, metallurgical .....	SDT	56,181	974,530	974,530	
Nickel, ferro .....	Lb	25,888,406	20,194,725	20,194,725	
Titanium .....	ST	428	919,468	919,468	
Tungsten .....	Lb W	3,948,950	9,998,889	9,998,889	
<b>Total DPA .....</b>			<b>\$ 68,020,994</b>	<b>\$ 68,020,994</b>	
<b>FEDERAL PROPERTY ACT INVENTORY:</b>					
Mercury .....	Fl	6,325	\$ 28,500	\$ 2,903,493	\$ 2,926,993
<b>Total Federal Property Act .....</b>			<b>\$ 28,500</b>	<b>\$ 2,903,493</b>	<b>\$ 2,926,993</b>
<b>GRAND TOTAL .....</b>			<b>\$33,486,273</b>	<b>\$171,167,887</b>	<b>\$204,654,160</b>

### NOTES ON STRATEGIC AND CRITICAL MATERIALS JULY-DECEMBER 1966 ACTIVITY

#### *Aluminum*

Under the long term contractual arrangement entered into in November 1965-January 1966, between General Services Administration and six domestic and one Canadian primary aluminum producers—Aluminum Company of America, Kaiser Aluminum & Chemical Corporation, Reynolds Metals Company, Olin Mathieson Chemical Corporation, Harvey Aluminum, Revere Copper and Brass Incorporated and Alcan Aluminium Limited—the producers agreed to purchase a minimum of 150,000 tons of aluminum for the period November 1, 1965, to December 31, 1966, and 100,000 tons annually thereafter, until the total 1.4 million tons surplus is exhausted.

During the 13 month period ending December 31, 1966, industry purchased a total of 357,294 tons, valued at \$175.7 million, to meet the growing demands for aluminum products resulting from the Viet Nam war and civilian economy. Of the total, approximately 83,875

tons were committed during the July-December period at a value of \$41.3 million. These Government disposals provided critically needed supplies at a time when growth in productive capacities was unable to keep pace with the mushrooming requirements for aluminum.

#### *Castor Oil*

Disposal offerings are made on a sealed-bid basis at 2-month intervals. All of the offerings were oversubscribed, and sales totaling approximately 18.2 million pounds, valued at \$2.6 million, approached the maximum allowable under the terms of the program. This high rate of sales was more than twice that of the preceding 6-month period, which may be explained by the substantial drop in Brazilian production. The cumulative total sold since the first sale of August 15, 1962, amounts to 81.8 million pounds with a cumulative sales value of \$11.6 million, leaving 73.8 million pounds remaining unsold from the 1962 authorization.

and another 46.0 million pounds excess in the stockpile awaiting GSA submission to the Congress for disposal consideration.

#### *Cobalt*

A disposal program was authorized on August 23, 1966, for approximately 25 million pounds of excess cobalt in the Defense Production Act inventory. The initial sale on September 20, 1966, offered one million pounds on a sealed-bid basis. Since this test offering revealed fairly strong demand, GSA reviewed the disposal plan with other agencies and revised the plan on November 9, 1966, to provide disposal of three million pounds in fiscal year 1967. By December 31, commitments totaled approximately 1.5 million pounds, valued at \$2.3 million. At the end of the period, indications pointed to a critical supply shortage of cobalt which could result in heavy industry reliance on the stockpile disposals and substantial increases in the sales rate prior to June 30.

#### *Columbium*

Sales were heavy throughout the period because of the extremely tight market for tantalum which is physically associated with the predominately columbium ore. The best response to the sealed-bid offerings was registered in the first half of the period prior to the depletion of the excess high tantalum-bearing columbite. By the end of the period, however, the severity of the tantalum shortage was such that there was extremely good demand for columbite containing less than 10 percent tantalum. Columbium sales for the period totaled approximately 945,000 pounds valued at \$6.3 million.

#### *Copper*

As the availability of refined copper continued to fall well behind the constantly growing industrial consumption, the President, on December 2, 1966, determined that the release of an additional 150,000 short tons of copper from the National Stockpile was required for purposes of the common defense, as provided under Section 5 of the Strategic and Critical Materials Stock Piling Act, as amended. This is the third Presidential release of copper totaling 550,000 short tons from the National Stockpile since November 18, 1965, and re-

duces the stockpile to about 259,000 tons against an objective of 775,000 short tons. The 150,000 tons are to be prorated to producers over the first nine months of calendar 1967 on the basis of their 1965 production for redistribution to domestic consumers for defense rated orders only, at no added cost. Government releases are planned for 22,000 tons each in January, February, and March; 20,000 tons each in April and May; 13,000 tons each in June and July; and 9,000 tons each in August and September.

In accordance with OEP's recommendation of March 17, 1966, which the President approved March 21, 1966, GSA has undertaken to expand domestic production of copper through the use of special incentives on a selective basis. At the year end, GSA had negotiations under way covering potential production of over 50,000 tons of copper per year from Arizona ores. It is estimated that nominal production could start in 1969. This project could involve private and/or Federal financing of about \$130 million supported by a Defense Production Act purchase contract.

#### *Lead*

Sales were generally steady throughout the period, totaling 43,293 tons valued at \$12.1 million. This level of sales did not change appreciably from the preceding period.

#### *Magnesium*

Disposal sales under the magnesium program reached their highest point during the July-December period, totaling 12,178 tons valued at \$7.4 million. The market had grown increasingly tight throughout 1966 as demand was spurred by new commercial uses and increased military consumption. Unfortunately, when demand reached its highest rate in the first two months of the period, excess availabilities had reached a point approaching depletion.

GSA convened a Government-industry meeting on September 21, to determine the most effective means of rationing the remaining 5,300 tons of excess. The industry expressed satisfaction with the handling of the disposal program, but was concerned over GSA's impending withdrawal from the market at a time of growing shortages.

As a result of new supply-requirements studies completed in late December, 55,000 additional short tons of magnesium were determined excess to stockpile needs and a disposal plan for submission to the Congress was under development at the year end. It is planned that commercial sales will be offered at the rate of approximately 5,000 short tons annually with additional quantities available for term contracts with primary magnesium producers.

#### *Molybdenum*

The Congress authorized the release of 14 million pounds of surplus molybdenum from the National Stockpile (PL 89-413) in May 1966. To effect equitable distribution in the face of the critical supply shortage, industry concurred that the material should be allocated by BDSA against consumer applications for domestic consumption only with priorities given to defense-rated orders and alleviation of hardship, particularly for small business. During the May-December period, sales commitments totaled 12.5 million pounds, valued at \$21 million, of which 8.8 million pounds went to producers (roasters) for processing, subject to BDSA allocations to consumers. As of December 31, 1966, approximately 3.6 million pounds of the quantity processed by roasters remain to be allocated. Another 1.5 million pounds are available from the stockpile, making a total of 5.1 million pounds awaiting allocation by BDSA at the year end.

On the basis of new supply-requirements studies completed in late December, another 15 million pounds of molybdenum became available for release subject to Congressional approval.

#### *Nickel*

On November 2, 1966, the Congress authorized the sale of 24.5 million pounds of surplus nickel (PL-740) remaining in the National Stockpile when the Congress amended the previous authorization to 200 million pounds (PL-828, November 5, 1965). Due to the continuing market shortage, this nickel is restricted for domestic consumption only and will be distributed on the basis of 90 percent for defense-rated orders and 10 percent for the alleviation of hardship particularly for small business.

Offerings are being allocated at a monthly rate by Business and Defense Services Administration, Department of Commerce.

During the reporting period, demand for nickel continued to be extremely heavy, due to the Viet Nam buildup and commercial requirements. Sales commitments of nickel available for release totaled only 32.6 million pounds, valued at \$25.9 million, as compared to 173.5 million pounds, valued at \$126.9 million in the January-June period. Disposal sales played an important role in alleviating potential cutbacks in producer's supply of nickel critically needed to meet defense and essential civilian production. On the basis of new conventional war requirements studies completed in late December, an additional 60 million pounds of nickel became available for disposal pending Congressional approval. The release of this material will be extended over several months on the basis of allocations furnished by BDSA with 50 million pounds reserved to fill DOD rated orders and 10 million pounds set aside for small business and special hardship cases.

#### *Rubber*

Government sales of rubber have continued at a high rate during the report period. Sales for July-December 1966 totaled 84,986 long tons, valued at \$39.6 million. Of this total, approximately 25,804 tons, valued at \$12.7 million, were commercial sales and 59,182 tons, valued at \$26.9 million, were for Government-use programs. Of the 59,182 tons, AID programs accounted for 19,976 tons and other Government programs, including DOD truck and aircraft tires, and retreading programs 39,206 tons.

In view of the continued price decline of rubber in the world market during the July-October period and in the interest of improving the U.S. relations with the producing countries, the Government announced on October 18, 1966, that disposals from the stockpile would be reduced to the quarterly rate of 30,000 long tons, or 120,000 tons annually, rather than the previous rate of 170,000 tons. Of the 30,000 tons quarterly, 6,000 tons are being set aside for commercial sales, 6,000 tons

for foreign AID programs, and 18,000 tons for defense contracts and other Government programs. The requirements contained in DOD contracts for certain rubber articles, specifying that 50% of the contract value must be purchased in the form of stockpile rubber, remain unchanged.

#### *Tin*

Tin remained one of the major revenue producers, although shelf sales were down one-third from the previous six months. The cause of slower sales was the narrowing gap between production and demand due to a leveling of consumption rates and increased production. Sales of tin from the National Stockpile totaled approximately \$24.7 million for 7,159 tons. Government-use of tin accounted for approximately \$4.6 million of the total sales. Since tin disposals were initiated in September 1962, cumulative sales have amounted to 81,239 long tons, valued at \$280.6 million. As of December 31, 1966, approximately 66,760 long tons remained available for disposal under the Congressional authorization.

#### *Tungsten*

The world supply situation for tungsten grew increasingly tight throughout the period. Based on the supply-demand outlook, the Government announced in July that commercial sales availability of tungsten through December 31, would be approximately 3.5 million pounds of tungsten. Shelf sales were heaviest in October, when many major domestic con-

sumers turned to the stockpile to support their requirements. Sales in the report period totaled 3.9 million pounds, valued at \$10.0 million. To meet the growing domestic shortage caused by the strengthening of world markets, the Government announced in November 1966, that tungsten would continue to be offered as a shelf item but on an unrestricted sales basis through June 1967.

#### *Vanadium*

Vanadium supplies continued to be critically short during the period, and the National Stockpile excess became again an important source for this vital metal alloy additive. During the period, approximately 1,681 short tons were sold to the consuming industry for a total of \$7.3 million.

Disposals of approximately 3,346 short tons of vanadium in calendar year 1966 represented approximately 60 percent of the estimated U.S. consumption for the year. Except for the stockpile disposal program, the domestic consuming industry would have undoubtedly suffered.

#### *Zinc*

Shelf sales in the period totaled 11,140 tons, valued at approximately \$3.3 million. This level of sales represents only 25 percent of the stockpile sales in the prior 6-month period. Import quotas for zinc were terminated in late 1965 resulting in increased imports of metal during the period.

### ACTIVITIES OF THE GENERAL SERVICES ADMINISTRATION RELATING TO STOCKPILING OF STRATEGIC AND CRITICAL MATERIALS

The General Services Administration is charged with the general operating responsibility, under policies set forth by OEP, for stockpile management, including (1) purchasing and making commitments to purchase, transferring, rotating, upgrading, and processing of metals, minerals, and other materials; (2) expansion of productive capacity through the installation of additional equipment in Government-owned plants and the installation of Government-owned equipment in privately-

owned facilities; (3) storage and maintenance of all strategic materials held in Government inventories, and (4) disposal of excess stockpile materials, including the development of disposal plans, selling the materials, and arranging for Government use of such materials.

The activities of the General Services Administration particularly in connection with procurement, upgrading, and disposals have been summarized in the earlier sections of this report.

## STORAGE AND MAINTENANCE

On December 31, 1966, approximately 48.3 million tons of strategic materials were stored at 150 locations, as follows:

Type of Facility	As Of 12/31/66	Change in Last 6 Months
Military depots .....	43	-2
GSA depots .....	27	+1
Other Government-owned sites .....	15	+1
Leased commercial sites..	14	-1
Industrial plantsites .....	39	-1
Commercial warehouses .	12	0
Total .....	150	-2

The Defense Supply Agency depot in Terre Haute, Indiana, and the Naval depot in Hastings, Nebraska, were inactivated by the military and transferred to GSA on July 1, 1966. Custody of stockpile materials stored at these locations is now under GSA.

An industrial plantsite location in Danville, Illinois, was completely evacuated by the sale of refractory bauxite stored thereon.

Shipments from the stockpile continued at a heavy rate as 666,000 tons of materials were shipped from storage locations during the peri-

od. The total of 1,598,000 tons shipped during calendar year 1966 more than doubles the 694,000 tons shipped during 1965. Outshipments during the past four periods were as follows:

Period	Tons
January-June 1965 .....	403,000
July-December 1965 .....	291,000
January-June 1966 .....	932,000
July-December 1966 .....	666,000

Inventory reductions due to disposal shipments in the period resulted in a projected savings in recurring storage costs exceeding \$150,000 per year.

## INSPECTION

The systematic inspection of stockpiled commodities by the Inspection activity of GSA continued with many comprehensive quality evaluations being conducted for specific commodities. The Inspection activity increased its participation in the area of disposal planning and sales, conducting a total of 11,250 inspections related to disposal actions. This inspection attention assured the proper quality identification of materials in disposal planning, and the inspections on unloading assured that the consuming plants received only materials of the specified quality and weight.

## ACTIVITIES OF THE DEPARTMENT OF COMMERCE RELATING TO STOCKPILING OF STRATEGIC AND CRITICAL MATERIALS

The Department of Commerce has been delegated a number of responsibilities with regard to the National Stockpile and these in turn have been assigned to the Business and Defense Services Administration within the Department. BDSA prepares for the Office of Emergency Planning estimates of essential civilian and war-supporting requirements for strategic materials in a mobilization period, a basic element in determining stockpile objectives. In certain limited cases, it also prepares estimates of the mobilization supply of such materials. It reviews plans for disposal of surplus stockpile materials and it provides OEP and GSA with its evaluation of the market impact of proposed schedules of sales. In addition, it develops recommendations in the mat-

ter of purchase specifications and storage procedures. Finally, it prepares special studies for OEP regarding strategic material problems and, in general, submits to OEP, on behalf of the Department, recommendations and advice on stockpile policies and programs.

## ESSENTIAL CIVILIAN AND WAR-SUPPORTING REQUIREMENTS

During the period, OEP completed its study of methods and guidelines for estimating requirements in a nuclear war situation. BDSA used the guidelines as a basis for developing essential civilian and war-supporting requirements in a nuclear war situation for materials in the National Stockpile list. These estimates were submitted to OEP by early December to

permit determination of nuclear war stockpile objectives prior to January 1, 1967.

In addition to the requirements studies for nuclear war objectives, BDSA reviewed requirements estimates for a conventional war situation for the following stockpile materials: bismuth, celestite, magnesium, molybdenum, nickel, platinum, rutile, silicon carbide, and titanium.

#### DISPOSAL PROGRAMS

During December 1965-June 1966, proposed disposal programs for almost all of the remaining surpluses in Government inventories were reviewed and comments or recommendations were sent to GSA. Since most of these programs incorporated a requirement for annual reviews, disposal recommendations in the second half of 1966 covered primarily those programs in need of revision by reason of changes in market activities. Accordingly, reviews of sales programs, including rates of sale, involved abaca, beryl, cobalt, manganese ore, mercury, nickel, quartz crystals, rare earths, and tungsten ores and concentrates.

#### NATIONAL STOCKPILE PURCHASE SPECIFICATIONS AND SPECIAL INSTRUCTIONS

The program for review of all stockpile purchase specifications and special instructions over a two-year period began to be activated in the fourth quarter of 1966. The importance of this review is accentuated by accelerating technological trends in the use of metals, minerals and other materials which could render obsolete forms in which stockpile inventories are being held. The complexity of some specifications is such that more than one industry survey and many interagency reviews are necessary before a generally acceptable formula can be devised. During the report period, the following revisions of purchase specifications and special stockpile instructions were issued:

<i>Purchase Specifications</i>	<i>Special Instructions</i>
Ferrocolumbium	Tungsten ores and concentrates
Tungsten ores and concentrates	

#### SPECIAL STOCKPILE STUDIES AND RELATED ACTIVITIES

*Copper*.—On March 21, 1966, the President approved the release of 200,000 short tons of refined copper from the National Stockpile under the authority of Section 5 of the Stock Piling Act. The copper was to be sold at 36¢ per pound for domestic consumption only. During the second quarter, GSA sold 96,700 tons to producers who redistributed the material in accordance with instructions from BDSA. These instructions involved allotments to consumers which would fulfill defense orders and ease hardship cases.

At the end of the second quarter and in the beginning of the third quarter, BDSA reviewed applications for purchases of the remaining copper in the third quarter. After appropriate screening, BDSA made allotments of 64,245 tons to cover defense orders and 39,055 short tons to meet domestic hardship requirements. As before, BDSA instructed producers as to allotments for each consumer. The producers were instructed to fill consumer orders from the Government stocks they had purchased. These quantities completed the distribution of the entire 200,000 tons.

On December 2, 1966, the President authorized the release of another 150,000 short tons of refined copper from the Government stockpile.

BDSA, in cooperation with other Government agencies, formulated plans for release of this copper. Under BDSA instructions, the total quantity will be sold by the General Services Administration to producers of refined copper from domestic ores, for resale to copper producers to fill defense-rated orders only.

The release schedule during 1967 will be as follows:

January through

March ..... 22,000 tons each month

April and May .. 20,000 tons each month

June and July .. 18,000 tons each month

August and

September .... 9,000 tons each month

GSA executed contracts with each participating producer in January 1967.

*Molybdenum*.—In May 1966, the Congress approved the disposal of 14 million pounds of

surplus molybdenum from the National Stockpile. By direction of OEP, BDSA surveyed the market and prepared instructions for the allocation of 4.3 million pounds to consumers in May and June to fill defense orders and to replace depleted inventories. Deliveries were also made to producers (roasters) who agreed to process the material for redistribution to consumers subject to BDSA allocations. On the basis of applications filed by consumers for the July-September quarter, BDSA issued approximately 150 allotments to the General Services Administration and to participating roasters covering about one million pounds for defense-rated orders and one million pounds for hardship cases. In the fourth quarter, BDSA provided allocations for another 1.2 million pounds for defense-rated orders and 1.4 million pounds for hardship cases. All molybdenum sales during the May-December period were restricted to domestic consumption. As of December 31, 1966, approximately 5.1 million pounds of the original 14 million pounds remained to be distributed.

*Nickel*.—The distribution plan of surplus nickel from the National Stockpile, as authorized by the OEP under PL 89-740, was announced by the Department in December 1966. The 24.5 million pounds available for release are being distributed on the basis of 90 percent (22.5 million pounds) for defense-rated orders and 10 percent (2.0 million pounds) for non-defense hardship, particularly the needs of small business. Furthermore, all nickel distributed must be consumed domestically. About 6.325 million pounds were allocated for use in December, of which 5.1 million pounds were to fill defense-rated orders and 1,225,000 pounds were for hardship cases. The remainder of the set-aside for hardship cases will be allocated in January.

Allocation of stockpile nickel to fill defense-rated orders is being made only in those cases requiring 50,000 pounds or more of the material. Persons having less than this minimum defense requirement must place rated orders with their suppliers under applicable BDSA regulations.

*Rubber*.—In connection with the development of a nuclear war stockpile objective, a special report was prepared for OEP providing up-to-date information on stereo rubber plants,

including present and prospective capacity production of each and the location of the plants.

*Palladium*.—The Office of Emergency Planning advised the Department on October 3, 1966, that the U.S. Mint had declared 4,392 ounces surplus to its needs. In light of the need for this material to lessen the deficit against the stockpile objective and a provision in the Stock Piling Act authorizing the transferral of such surpluses to the stockpile, if not needed to make up a deficiency of supply for industrial requirements, OEP requested the Department to make a determination regarding the need of industry for this quantity.

After consultation with industry representatives and an evaluation of the market, BDSA prepared a statement that there was not at that time a deficiency in the supply of palladium for the current requirements of industry such as would warrant exempting the palladium in question from the required transfer to the stockpile.

*Refractory Chromite*.—Because of the deficit of 200,000 short tons against the stockpile objective for refractory chromite and the difficulty in acquiring additional supplies as the traditional sources became depleted, OEP requested BDSA to review on an interagency basis the feasibility of using friable Transvaal chromite for this purpose. If found suitable, the availability of surplus material of this type in the chemical grade chromite inventory would make further purchases of refractory grade chromite unnecessary.

In studying this situation, current use of friable chromite for refractory purposes was analyzed, the need for special equipment for such usage was determined and total consumption of both types was ascertained. In addition, industry was consulted regarding the comparability of friable chromite refractory brick with nonfriable refractory grade chromite brick.

Based on this study, it was concluded that the friable ore could be satisfactorily used in a number of cases. Accordingly, BDSA prepared for OEP drafts of special stockpile instructions which would permit crediting to the refractory grade chromite objective, a sufficient quantity of the surplus friable ore in the chemical grade chromite inventory to complete the refractory grade chromite stockpile objective.

## ACTIVITIES OF THE DEPARTMENT OF STATE RELATING TO STOCKPILING OF STRATEGIC AND CRITICAL MATERIALS

The Department of State provides advice and guidance in regard to the effects of stockpile program activities on our foreign relations and deals with international relations problems arising out of these activities. The Department helps to assess the availability of strategic and critical materials from the primary producing countries and the reliability of these sources in time of national emergency. It participates in a review of the supply and demand situation for each of the strategic materials and helps to develop stockpile objectives.

The Department shares in the development of long-range plans for the disposal of surplus materials and conducts consultations with interested foreign governments on proposed disposals. Based on these consultations, an evaluation is made of the political and economic effects of such plans on friendly foreign countries and on the foreign relations of the United States. As necessary, the Department makes

recommendations for the adoption or modification of proposed disposal plans.

The Department reviews proposals for the barter of United States surplus agricultural commodities for strategic materials. It also assists and advises the Department of Agriculture on foreign policy problems arising from the implementation of barter programs.

During the period July through December 1966, the Department conducted numerous consultations on new disposal plans and on modification of existing programs. For example, extensive consultations were held with the interested foreign governments and with the international organizations dealing with tin and rubber on the disposal programs for these materials. The Department received and handled such adverse foreign reactions to our disposal programs as arose and gave advice on new foreign policy development which had a bearing on already existing programs.

## ACTIVITIES OF THE DEPARTMENT OF AGRICULTURE RELATING TO STOCKPILING OF STRATEGIC AND CRITICAL MATERIALS

### TRANSFERS FROM STOCKPILE FOR DISPOSAL

No foreign-grown extra-long staple cotton remained in the National Stockpile inventory as of December 31, 1966. Domestic-grown extra-long staple cotton remaining in this inventory amounted to 36,341 bales at the end of 1966.

In 1962, General Services Administration transferred all National Stockpile extra-long staple domestic and foreign-grown cotton to the Commodity Credit Corporation. This involved about 123,000 bales (running) of Egyptian and Sudanese cotton. The 15,115 bales of this foreign-grown cotton on hand July 1, 1966, have been disposed of through an export sales program, reducing the inventory to zero.

The GSA transfer to CCC involved 47,518 bales of domestic cotton which were added to the CCC inventory, making a total of 53,740 bales. Sales from this have been for unrestricted use. Cumulative sales through June 30, 1966, were 15,263 bales. Sales during the peri-

od July-December 1966 amounted to 2,136 bales, leaving an inventory of 36,341 bales.

### EXPANSION OF DOMESTIC SOURCES

To insure a basis for minimum emergency production requirements, a supply of viable seed of eight varieties or strains of opium poppy seed is maintained. Strain M92 was grown at Mesa, Arizona and seed sent to the National Seed Storage Laboratory in 1962. Germination of stored seed has been so good that it seems inadvisable to make an increase each year. As a result, no poppies are being grown for 1967 harvest.

### FOREST PRODUCTS AND WOOD UTILIZATION RESEARCH

Improved techniques developed through packaging research may have application in the handling and maintenance of stockpile materials. For example, research involving methods of improving the moisture resistance of corrugated containers indicated significant

promise through use of paper treated with phenolic resins. Recent studies indicate the best method of avoiding embrittlement caused by resin impregnation may be to laminate treated and untreated paper. It has been demonstrated that low-density polyethylene used as a laminating adhesive results in laminates of maximum flexibility. Coupled with this, an increased amount of low-molecular weight, water soluble phenolic resin in the treated ply provides maximum strength.

A digital computer will be used to facilitate the evaluation of cushioning characteristics of corrugated pads. The studies involve an almost limitless number of combinations of materials, configurations, and orientations possible in built-up pads of fiberboards.

#### BARTER ACTIVITIES

The barter program of the U.S. Department of Agriculture exchanges agricultural commodities for foreign-produced strategic and other materials for stockpiling and for foreign mate-

rials, goods and services required abroad by other U.S. Government agencies. Barter contracts are transacted mainly under authority of the Agricultural Trade Development and Assistance Act of 1954, as amended (P.L. 480, 83rd Congress) and the Commodity Credit Corporation Charter Act, as amended.

There were four barter contracts for strategic materials valued at \$8 million signed during the period July-December 1966. These contracts provided for processing into beryllium metal of Indian beryl ore being delivered under a bilateral U.S. - Indian barter transaction.

Strategic materials valued at \$18.5 million were delivered to CCC during the period July-December 1966, bringing the cumulative total of deliveries to CCC under barter contracts since 1950 to approximately \$1.6 billion. Of this total, \$223.3 million were transferred to the National Stockpile and about \$1.4 billion to the Supplemental Stockpile through December 31, 1966.

### ACTIVITIES OF THE DEPARTMENT STOCKPILING OF STRATEGIC

The Department of the Interior is responsible for the management, conservation, and development of the Nation's natural resources to meet the requirements of national security and an expanding economy. The Department provides advice and assistance to the Office of Emergency Planning in formulating and carrying out programs for the stockpiling of strategic and critical materials. The Department of the Interior conducts research in exploration, mining, beneficiation, and metallurgy and compiles information on production and consumption for use in stockpile planning.

The Department is responsible for emergency preparedness planning with respect to strategic metals and minerals and other resources, and conducts supply-requirements studies when market conditions or other circumstances indicate problem areas in which materials are likely to be in short supply and recommends appropriate action to overcome deficiencies. The Department also administers programs to encourage the exploration, development, and mining of minerals and metals for emergency purposes.

### OF THE INTERIOR RELATING TO AND CRITICAL MATERIALS

#### STOCKPILE DISPOSALS

The Department cooperates in the development of long-range programs for the disposal of surplus Government stockpile inventories and conducts consultations with representatives of the interested industries. The industry views along with analyses of the market situation are carefully considered in the development of Departmental recommendations for acceptance or modification of the proposed plans.

#### OTHER ACTIVITIES

The Department participated actively in investigating and screening proposals by industry to expand domestic production of copper ore in response to the Government's offer to undertake negotiations with domestic producers to provide the incentive needed for obtaining additional production to meet an acute shortage of copper. The Department also cooperated in the establishment of export quotas on copper to help alleviate the domestic short supply situation.

The Geological Survey has reported the discovery of dawsonite, an aluminum-bearing mineral, in samples of oil shale collected from outcrops along the northern rim of the Piceance Basin in Colorado. This discovery significantly increases the area in which potential deposits of dawsonite might occur. Utilization of dawsonite as a by-product source of aluminum in the processing of oil shale for fuel products is under study.

Potentially large resources of the rare earths are reported by the Geological Survey in the marine phosphate rock which is mined extensively for phosphate fertilizer in Florida, Idaho, Montana, and North Carolina. The potential availability of 4,000–5,000 tons of rare

earths annually is estimated as a by-product from the millions of tons of rock used to make phosphoric acid. Apatite, the basic constituent of phosphate rock, is relatively richer than conventional rare earth sources in yttrium and the heavier rare earths such as europium, gadolinium, thulium and erbium which are particularly sought after in nuclear and electronic technology. The essentials of a recovery technology are available in established practices of the chemical industry. An economic by-product recovery process depends upon the success of research on extraction methods.

Special and technical reports, issued during July–December 1966, having a relationship to strategic and critical materials are as follows:

## BUREAU OF MINES

### Minerals Yearbook 1965

Preprints of individual chapters of all strategic minerals were published.

### Reports of Investigation

- 6800 High-Temperature Corrosion Studies. Influence of Yttrium on Oxidation of Nickel at 1200° C
- 6808 Oxidation Leaching of Copper Sulfides in Ammoniacal Pulps at Elevated Temperatures and Pressures
- 6809 Extraction and Separation of Selected Lanthanides With a Tertiary Amine
- 6810 Piezoelectric Pulsing Equipment for Sonic Velocity Measurements in Rock Samples From Laboratory Size to Mine Pillars
- 6812 Photoelastic Study of an Internally Stressed Circular Opening in a Biaxial Stress Field
- 6813 Crystalline Titanium by Sodium Reduction of Titanium Lower Chlorides Dissolved in Sodium Chloride
- 6817 High-Energy-Rate Extrusion of Low-Density Tungsten Powder Billets
- 6822 Heats and Free Energies of Formation of Anhydrous Carbonates of Barium, Strontium, and Lead
- 6828 Nonpegmatitic Beryllium Occurrences in Arizona, Colorado, New Mexico, Utah, and Four Adjacent States
- 6834 Influence of Repetitive Electrolysis on Winning Molybdenum
- 6835 Preparation of Submicron Tungsten Powder by Hydrogen Reduction of Tungsten Hexachloride
- 6836 Density and Molar Volume of Binary Fluoride Mixtures
- 6838 Inelastic Deformation of Rock Under a Hemispherical Drill Bit
- 6841 Recovery of Additional Beryllium From Fluoferrate Leach Residue
- 6842 Yield and Ultimate Strengths of Rock Bolts Under Combined Loading
- 6845 Tungsten Recovery from Low-Grade Concentrates by Amine Solvent Extraction
- 6850 Preparation of High-Purity Molybdenum by Molten Salt Electrorefining
- 6851 Thermoelectric Properties of Yttrium Selenides and Tellurides

- 6852 Determination of Copper With Disodium Ethylenedinitrilo Tetraacetate (EDTA)  
6853 Vapor Deposition of Molybdenum-Tungsten Alloys  
6861 Thermodynamic Data for Molybdenum Carbide and Tantalum Carbide  
6862 High-Temperature Heat Content of Lithium Columbate  
6866 Intermediate Phases in the Magnesium-Cerium System Between Magnesium and  $Mg_3Ce$   
6867 Investigation of Correlation Between Assay Values and Unequal Sample Interval Lengths  
6873 Heats of Formation of Lithium Sulfate and Five Potassium- and Lithium-Aluminum Silicates  
6875 Electrolytic Methods for Producing Titanium and Titanium Alloys  
6878 Electrorefining of Titanium-Nitrogen Alloys  
6882 Electrowinning and Tapping of Lanthanum Metal

#### Information Circulars

- 8290 Titanium Resources of the United States  
8298 Reconnaissance of Beryllium-Bearing Pegmatite Deposits in Six Western States, Arizona, Colorado, New Mexico, South Dakota, Utah, and Wyoming  
8303 Manganese Occurrences in the Eureka-Animas Forks Area of the San Juan Mountains, San Juan County, Colo.  
8307 Fluorspar Deposits of New Mexico

#### Professional Papers

- 550-C Geological Survey Research 1965, Chapter C. Short papers on analytical methods, economic geology, and related subjects.

#### Bulletins

- 1185-C The uraniferous zirconium deposits of the Pocos de Caldas Plateau, Brazil, by G. E. Tolbert.  
1198-E Geochemical reconnaissance in the Pequop Mountains and Wood Hills, Elko County, Nevada, by R. L. Erickson, A. P. Marranzino, Uteana Oda, and W. W. Janes (zinc, lead, mercury).  
1199-O Bauxite deposits of the Anniston, Fort Payne, and Asheville areas, northeast Alabama, by Preston E. Cloud, Jr.  
1199-P Some bauxite and clay deposits in northeastern Alabama, by Norman M Denson and Karl M. Waage.  
1222-C Geology and mineral deposits of the Powell River area, Claiborne and Union Counties, Tennessee, by A. L. Brokaw, John Rodgers, D. F. Kent, R. A. Laurence, and C. H. Behre, Jr. (zinc and lead).  
1223 Nickel deposits of North America, by H. R. Cornwall.

#### Circulars

- 535 Distribution of gold, silver, tellurium, and mercury in the Ely mining district, White Pine County, Nevada, by Garland B. Gott and J. Howard McCarthy, Jr.

## **Maps**

- I-454      Geologic map and sections of the Zuni Mountains fluorspar district, Valencia County, New Mexico, by E. N. Goddard.
- MR-13      Copper in the United States, exclusive of Alaska and Hawaii, by A. R. Kinkel and N. P. Peterson. (Reprinted 1966)
- MR-24      Gold in the United States, exclusive of Alaska and Hawaii, by A. H. Koschmann and M. H. Bergendahl. (Reprinted 1966)
- MR-30      Mercury in the United States, exclusive of Alaska and Hawaii, by E. H. Bailey. (Reprinted 1966)

## STATUS OF OBLIGATIONAL OPERATIONS

Under PL 117 and PL 520 for The National Stockpile

As of December 31, 1966

AUTHORITY	APPROPRIATED FUND \$/	AUTORIZATIONS FOR		TOTAL OBLIGATIONAL AUTHORITY (CUMULATIVE) \$/
		MAKING ADVANCE CONTRACTS b/	Liquidating OUTSTANDING ADVANCE CONTRACTS c/	
<u>Under PL 117 - 76th Congress</u>				
PL 361 - 76th Congress, August 9, 1939	\$ 10,000,000	\$	\$	\$ 10,000,000
PL 442 - 76th Congress, March 25, 1940	12,500,000			22,500,000
PL 667 - 76th Congress, June 26, 1940	47,500,000			70,000,000 d/
<u>Under PL 520 - 79th Congress</u>				
PL 663 - 79th Congress, August 8, 1946	100,000,000	-	-	100,000,000
PL 271 - 80th Congress, July 30, 1947	100,000,000	75,000,000	-	275,000,000
PL 785 - 80th Congress, June 25, 1948	225,000,000	300,000,000	-	800,000,000
PL 785 - 80th Congress, June 25, 1948	75,000,000	-	75,000,000	800,000,000
PL 119 - 81st Congress, June 23, 1949	40,000,000	270,000,000	-	1,110,000,000
PL 150 - 81st Congress, June 30, 1949	275,000,000	250,000,000	-	1,635,000,000
PL 150 - 81st Congress, June 30, 1949	250,000,000	-	250,000,000	1,635,000,000
PL 434 - 81st Congress, October 29, 1949	-	-	100,000,000 e/	1,535,000,000
PL 759 - 81st Congress, September 6, 1950	365,000,000	-	240,000,000	1,660,000,000
PL 759 - 81st Congress, September 6, 1950	240,000,000	125,000,000	-	2,025,000,000
PL 843 - 81st Congress, September 27, 1950	573,232,449 g/	-	-	2,598,232,449
PL 911 - 81st Congress, January 6, 1951	1,834,911,000	-	-	4,433,143,449
PL 253 - 82nd Congress, November 1, 1951	590,216,500	-	-	5,023,359,949
PL 253 - 82nd Congress, November 1, 1951	200,000,000	-	200,000,000	5,023,359,949
PL 455 - 82nd Congress, July 25, 1952	203,979,000	-	70,000,000	5,157,338,949
PL 176 - 83rd Congress, July 31, 1953	-	-	10,000,000	5,127,338,949
PL 428 - 83rd Congress, June 24, 1954	-	-	27,500,000	5,099,738,949
PL 653 - 83rd Congress, August 26, 1954	379,952,000 h/	-	-	5,479,690,949
PL 112 - 84th Congress, June 30, 1955	321,721,000 i/	-	-	5,801,411,949
PL 112 - 84th Congress, June 30, 1955	27,400,000	-	27,400,000	5,801,411,949
PL 864 - 85th Congress, August 28, 1958	3,000,000	-	-	5,804,411,949
Rescinded by PL 255 - 86th Congress, September 14, 1959	-58,370,923 j/	-	-	5,746,041,026
PL 626 - 86th Congress, July 12, 1960	22,237,000 k/	-	-	5,768,278,026
PL 141 - 87th Congress, August 17, 1961	16,682,510 l/	-	-	5,784,940,336
PL 741 - 87th Congress, October 3, 1962	8,729,887 m/	-	-	5,793,690,423
PL 215 - 88th Congress, December 19, 1963	23,925,000	-	-	5,817,615,423 n/
PL 507 - 88th Congress, August 30, 1964	9,319,168 o/	-	-	5,826,934,591
PL 16 - 89th Congress, April 30, 1965	118,500	-	-	5,827,053,091
PL 128 - 89th Congress, August 16, 1965	16,096,284 p/	-	-	5,843,149,375
PL 555 - 89th Congress, September 6, 1966	18,493,782 q/	-	-	5,851,643,164
Total PL 117 and 520	\$5,931,643,164	\$1,020,000,000	\$1,020,000,000	\$5,931,643,164

a/ Congressional appropriations of funds for stockpiling purposes.

SOURCE: GENERAL SERVICES ADMINISTRATION

b/ Congressional appropriations of contracting authority for stockpiling purposes in advance of appropriation of funds.

c/ Congressional authorization to liquidate outstanding obligations incurred under previously granted advance contract authority.

d/ Cumulative total of appropriated funds and advance contract authorization, less authorization to liquidate outstanding advance contract.

e/ Excludes \$8,845,792 recalled from sale of stockpile materials for wartime consumption. Receipts were returned to Treasury, February 1948.

f/ Cancellation of previously authorized authority to make contracts.

g/ Excludes \$23,044,921 transferred to operating expenses for rehabilitation of Government-owned material producing plants.

h/ Excludes \$48,000 transferred to Transportation and Public Utilities Service, GSA.

i/ Excludes \$430,000 transferred to Transportation and Public Utilities Service, GSA and \$199,369,000 transferred to General Fund Receipts on June 27, 1956 - PL 623 - 84th Congress.

j/ As of June 30, 1959 this amount included cash of \$32,350,792 and receivables of \$6,020,131.

k/ Excludes \$7,761,000 transferred to other GSA Funds for classified and wage board salary increases during 1961.

l/ Appropriation of \$40,000,000 of which \$22,700 transferred to Office of Administrator, GSA and \$23,294,790 transferred to General Fund Receipts.

m/ Appropriation of \$18,095,000 less transfer to General Fund Receipts of \$9,365,113.

n/ Excludes receipts from rotational sales.

o/ Appropriation of \$17,735,000 less returns to Treasury of \$8,435,832.

p/ Appropriation of \$17,400,000 less returns to Treasury of \$1,303,716.

q/ Appropriation of \$19,847,000 less returns to Treasury of \$1,353,211.

TOTAL OBLIGATIONS AND EXPENDITURES OF STOCKPLTING FUNDS

Under PL 117 and PL 520 for the NATIONAL STOCKPILE

CUMULATIVE AND BY FISCAL PERIOD THROUGH DECEMBER 31, 1966

Fiscal Period	OBLIGATIONS INCURRED A/		EXPENDITURES B/	
	New Change By Fiscal Period	Cumulative As of End of Period	By Fiscal Period	Cumulative As of End of Period
Prior to Fiscal Year 1948	\$ 123,871,685	\$ 123,871,685	\$ 66,330,731	\$ 66,330,731
Fiscal Year 1948	252,901,411	376,773,096	82,907,575	149,238,306
Fiscal Year 1949	459,766,881	836,539,977	304,486,177	453,724,483
Fiscal Year 1950	680,427,821	1,516,967,798	460,834,970	894,559,453
Fiscal Year 1951	2,075,317,099	3,592,286,897	635,537,199	1,550,896,652
Fiscal Year 1952	948,117,547	4,540,402,444	844,683,459	2,394,780,111
Fiscal Year 1953	252,375,163	4,792,777,607	906,158,850	3,300,938,961
Fiscal Year 1954	116,586,681	4,909,364,288	644,766,321	3,945,699,282
Fiscal Year 1955	321,799,833	5,231,164,121	801,310,094	4,747,009,376
Fiscal Year 1956 C/	251,692,667	5,482,856,788	382,011,786 C/	5,129,021,162 C/
Fiscal Year 1957	190,000,109	5,672,856,897	354,576,558	5,483,597,720
Fiscal Year 1958	54,473,230	5,727,330,147	173,753,997	5,657,351,717
Fiscal Year 1959	38,710,879	5,766,061,026	65,260,998	5,722,611,815
Fiscal Year 1960	19,859,290	5,785,900,316	49,227,142	5,771,838,957
Fiscal Year 1961	29,082,919	5,816,983,235	33,325,431	5,805,164,388
Fiscal Year 1962	31,179,407	5,846,162,642	33,695,431	5,838,859,819
Fiscal Year 1963	17,414,900	5,863,577,542	22,104,176	5,860,963,955
Fiscal Year 1964	15,489,597	5,875,067,139	16,031,067	5,877,052,052
Fiscal Year 1965	16,288,732	5,895,555,871	16,551,275	5,893,616,337
Fiscal Year 1966	16,236,070	5,911,651,941	16,468,100	5,910,084,437
Fiscal Year 1967 - First Half	8,111,732	5,919,763,673	8,676,091	5,918,760,528

A/ Figures are the sum of obligations incurred under PL 520, 79th Congress and PL 117, 76th Congress.  
 Final obligations under PL 117, 76th Congress were incurred in Fiscal Year 1969.

B/ Figures are the sum of expenditures under PL 520, 79th Congress and PL 117, 76th Congress.  
 Final expenditures under PL 117, 76th Congress were made in Fiscal Year 1951.

C/ 1956 and subsequent fiscal periods and cumulative expenditures are reported on an accrual basis.

SOURCE: GENERAL SERVICES ADMINISTRATION

EXPENDITURES OF STOCKPILE FUNDS, BY TYPE  
 (for the National Stockpile)

Cumulative and for First Half Fiscal Year 1967

Type of Expenditure	Cumulative Through June 30, 1966	Six Months Ended December 31, 1966	Cumulative Through December 31, 1966
<b>Expenditures</b>			
Gross Total	\$ 6,453,874,031	\$ 8,922,745	\$ 6,462,796,776
Less: Adjustments for Receipts from Rotation Sales and Reimbursements	543,789,594	246,654	544,036,248
Net Total	5,910,084,437	8,676,091	5,918,760,528
Material Acquisition Costs, Total	5,438,094,017	281,622	5,438,375,639
Stockpile Maintenance Costs, Total	405,726,131	6,232,958	411,959,089
Facility Construction	43,772,457	-	43,772,457
Storage and Handling Costs	259,203,363	6,232,958	265,436,321
Net Rotation Costs	102,750,311	-	102,750,311
Administrative Costs	56,601,762	1,702,950	58,304,712
Operations, Machine Tool Program	9,662,527	458,561	10,121,088

Cumulative figures are the total of expenditures under PL 117, 76th Congress and PL 520, 79th Congress. Expenditures under PL 117 totaled \$70,000,000 of which \$55,625,237 was for materials acquisition costs and \$14,374,763 was for other costs. Final expenditures under PL 117 were made in FY 1951.

SOURCE: GENERAL SERVICES ADMINISTRATION